

**Company:** French Winery

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**Title:** Application of Overall Equipment Effectiveness in a Winery

**Problem / Root Causes:** From a holistic view on the process, it was intended to evaluate the performance of the equipment used in the wine production process. This action was based on the need to make the process more efficient, reducing variations in the availability, quality and performance of the local machinery. Thus, it was discussed, together with the company's management, the gains that could be obtained through the application of OEE in the local productive process.

**Current Situation Analysis:** The company's production process operates at a standard rate of eight hours per day, four of which are carried out in the first period, with an interval of one hour for lunch, completing the remaining four hours in the second period of the day.

As the process has several equipment, the ones that fit the most are the relevance and the ease of data collection. The equipment is represented as: press (equipment 01), the filling machine number 01 (equipment 02) and the filling machine number 02 (equipment 03).

In the current situation, the OEE values, by equipment, are gathered in the Table below.

Table 1 - Value of OEE by equipment

Equipment	$\mu_1$ (%)	$\mu_2$ (%)	$\mu_3$ (%)	OEE (%)	Acceptability
1	66,88	61,25	81,84	33,52	Not acceptable
2	79,33	80,12	77,1	49,00	Not acceptable
3	77,52	74,39	80,05	46,16	Not acceptable
Mean	74,58	71,92	79,66	42,90	-

The acceptable world-class OEE standard is 85%, with an availability score of ninety percent (90%), as well as the performance efficiency score of ninety-five percent (95%) and index of 99.9% would be ideal in practice.

**Tools Used for Solution:** To solve the problem, the following tools were used:

- OEE: To measure overall efficiency;
- SIPOC matrix: To obtain a clear and clear overview of the stages of the process and the activities that comprise it;
- Action plan (5W1H): for planning and monitoring activities required to achieve a desired result.

**Action Plan:** The main actions defined are shown in Table 5W1H below.

Table 2 - 5W1H elaborated

What	Why	Where	Who	When	How
Studies on equipment efficiency by product	Identify potential bottlenecks	Production	Local management	Within 60 days	Equipment OEE Calculations
Analyze ways to make better use of packaging machines	Optimize Productivity	Production	Local management	Within 60 days	Methods engineering study
Stratify and monitor time spent on equipment at unplanned stops	Increase availability index ( $\mu_1$ )	Production	Local management	In up to 40 days	Observation recorded in worksheets by equipment
Implement maintenance management at the plant	Increase availability index ( $\mu_1$ )	Maintenance	Local management	In up to 40 days	Definition and training of maintenance staff
Analyze and detect losses due to lack of qualification of employees	Increase performance index ( $\mu_2$ )	Production	Local management	In up to 40 days	Observation stratified by employee versus average number of losses in the period
Stipulate cost with rework	Increase the quality index ( $\mu_3$ )	Production	Local management	Within 30 days	Financial study applied

**Results obtained and Conclusions:** In view of the above, 5W1H can help the company to achieve better performance, as it translates as a support in the quest for total quality and should be followed and improved according to the needs.